

Energy Star Test Report

For

L-TECH CORPORTION

(Brand Name: L-TECH CORP)

SHAOGANGTOU DISTRICT.QIAOTOU TOWN.DONGGUAN
CITY.GUANGDONG PROVINCE,CHINA

Downlights

Model name(s): LRKT644W-EN-##90

Remark: "##" in the model name stands for different CCT as bellow:
27=2700K,30=3000K,40=4000K,50=5000K

Representative (Tested) Model: LRKT644W-EN-2790

Model Different: All construction and rating are the same, except CCT

Test & Report By:

Bill Luo

Engineer: Bill Luo

Date: Oct.16,2017

Review By:

Tommy Liang

Manager: Tommy Liang

- Note: 1.The results contained in this report pertain only to the tested samples.
2.This report does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Laboratory: Standard-Tech Co. Ltd Testing Center
NVLAP CODE: 201011-0

Report Format Number STD/QR4910-A/1

Address: Standard-Tech Building, No.6 Guanhong Road,Guangzhou Science City, Guangzhou 510663, China

Tel: 8620-3229 0320 Fax: 8620-32290422 <http://www.standard-tech.com>

U.S. Department of Energy

Lighting Facts™ Uniform LM-79 Reporting Template

Laboratory Information:

Name of Test Laboratory	Standard-Tech Co., Ltd.
Date of Test Report	Oct.16,2017
Test Report No.	GZE1709109-H-L
Laboratory Contact Name	Tommy Liang

Product Information:

Organization Name	L-TECH CORPORTION	
Brand Name	L-TECH CORP	
Model Number	LRKT644W-EN-##90	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Downlights	
Luminaire Aperture (for Downlightss)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

Integrating Sphere

Goniophotometer

Electrical Measurements:

	Output	Output	
Input Wattage	--	15.02	W
Input Current	--	0.1282	A
Input Voltage (ac)	--	120.0	V
Power Factor	--	0.9760	
Off-State Power	--	0	W

Photometric Characteristics

Total Initial Lumen Output	--	1095.9	lm
Initial Lumen Efficacy	--	72.96	lm/w
Correlated color temperature / CCT	2726	--	K
Color rendering index / CRI	92.6	--	
R9 Value	56	--	
Duv	-0.0020	--	
Luminous Intensity Distribution			
Center beam candlepower (if applicable)		454	cd
Beam angle (if applicable)		101.4	°
Zonal lumens in the 0°-60° zone		85.6	%
Zonal lumens in the 60°-90° zone	-----	14.4	%
Zonal lumens in the 90°-120° zone		0	%
Zonal lumens in the 120°-180° zone		0	%

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Test Specifications:	
Date of Receipt	Sep.20,2017
Date of Test	Oct.09,2017
Test item	: Total Luminous Flux, Luminous Distribution Intensity, Luminous Efficacy, Correlated Color Temperature, Color Rendering Index, Chromaticity Coordinate, Electrical parameters
Reference Standard	IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources CIE 15-2004 Technical Report Colorimetry IESNA LM-16-93 Practical Guide to Colorimetry of Light Source IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems UL1993 4 th Edition, Self-Ballasted Lamps and Lamp Adapters ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) – Version 2.0
Reference Work Instruction	QD25
Remark	Below test and data are not covered by NVLAP accreditation: - Operating Frequency

Test Methods

1. Photometric and Electrical measurements – Light Distribution Method:

Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at 25° C ± 1° C, measured at a point not more than 1 m from the sample and at the same height as the sample. The sample was operated at 120 Volts AC, 60Hz. It was stabilized before measurement was made. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 1° vertical intervals and 22.5° horizontal intervals.

2. Photometric and Electrical Measurements – Integrating Sphere Method:

Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25° C ± 1° C. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at 120 Volts AC, 60Hz. It was stabilized before measurement was made. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at least 5 nm intervals over the range of 380 to 780 nm.

1. Product Information:

Brand Name	L-TECH CORP
Model Number	LRKT644W-EN-##90
Luminaire Type	Downlights
Rated Voltage / Frequency	120Vac, 50/60 Hz
Nominal Power	15.5W
Rated Initial Lamp Lumen	--
Declared CCT	2700K,3000K,4000K,5000K
LED Manufacturer	Edison Opto Corporation
LED Model	2T03X5WW11000003
Sample Receipt Date	Sep.20,2017
Sample Number	GZE1709109-H-L1,L2,L3

Photo



2.1 Electrical, Photometric and Chromaticity Measurements <i>(Refer to Work Instruction QD25)</i>	IES LM-79 2008
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Test date	2017-10-09	Test Ambient:	25.0 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	LRKT644W-EN-2790		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
GZE1709109-H-L1	120.0	60	0.1282	15.02	0.9760
GZE1709109-H-L2	120.0	60	0.1312	15.25	0.9686
GZE1709109-H-L3	120.0	60	0.1299	15.17	0.9735
Average			0.1298	15.15	0.9727

Sphere-Spectroradiometer Method:

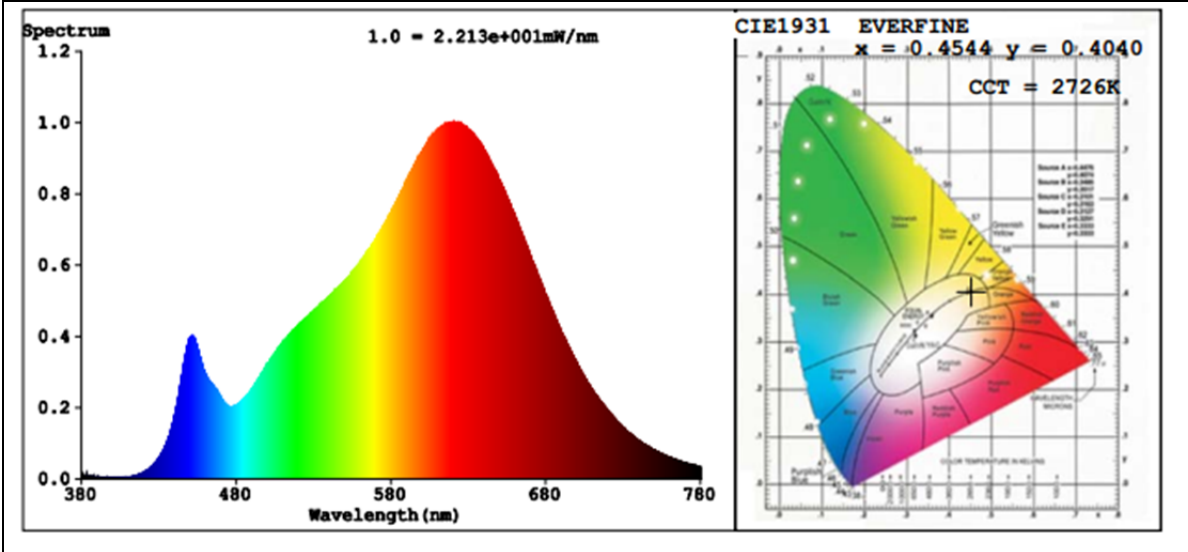
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	92.6
R9	56
CCT (K)	2726
Chromaticity (x, y)	x=0.4544 y=0.4040
Chromaticity (u', v')	u'=0.2619 v'=0.5240
Duv	-0.0020

Special Color Rendering Indices			
R1	93	R9	56
R2	98	R10	94
R3	98	R11	94
R4	93	R12	88
R5	94	R13	95
R6	97	R14	100
R7	90	R15	89
R8	79	--	--

Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1095.9
Luminous Efficacy (lm/W)	72.96
Beam Angle°	101.4
Center Beam Candle Power (cd)	454

Spectral Power Distribution and Chromaticity Diagram



Laboratory: Standard-Tech Co. Ltd Testing Center
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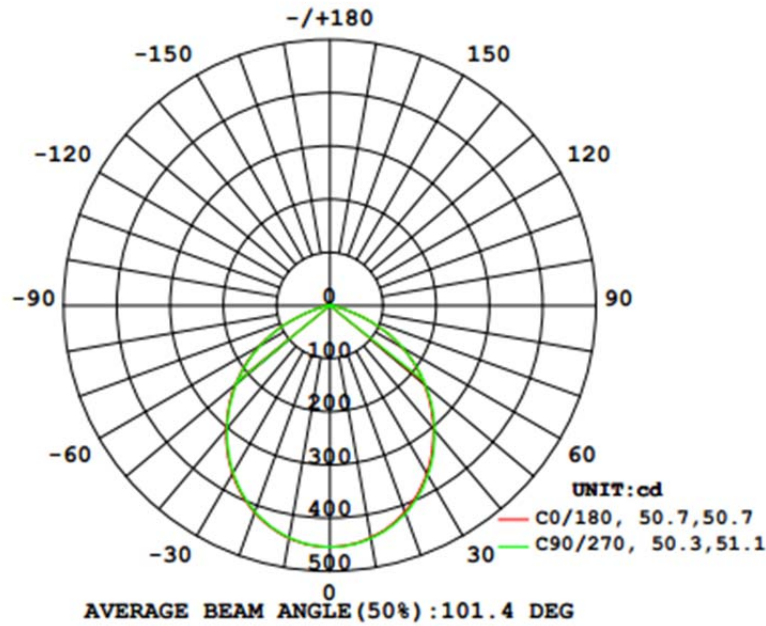
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Zonal Lumen Tabulation

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	344.8	31.5%
0-40	555.2	50.7%
0-60	938.3	85.6%
60-90	157.4	14.4%
70-100	42.9	3.9%
90-120	0.0	0%
0-90	1,095.7	100%
90-180	0.1	0%
0-180	1,095.7	100%

Lumens Per Zone					
Zone	Lumens	%Total	Zone	Lumens	%Total
0-10	42.9	3.9%	90-100	0.0	0%
10-20	121.5	11.1%	100-110	0.0	0%
20-30	180.4	16.5%	110-120	0.0	0%
30-40	210.4	19.2%	120-130	0.0	0%
40-50	208.0	19.0%	130-140	0.0	0%
50-60	175.1	16.0%	140-150	0.0	0%
60-70	114.5	10.5%	150-160	0.0	0%
70-80	38.2	3.5%	160-170	0.0	0%
80-90	4.7	0.4%	170-180	0.0	0%

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Table--1

UNIT: cd

C (DEG) \ y (DEG)	0	23	45	68	90	113	135	158	180	203	225	248	270	293	315	338
0	454	454	454	454	454	454	454	454	454	454	454	454	454	454	454	454
5	451	451	452	452	452	452	452	452	452	452	451	451	451	451	451	451
10	443	444	444	444	445	445	444	444	444	444	444	443	443	443	443	443
15	430	431	432	432	433	433	432	432	432	431	431	430	430	430	430	430
20	413	414	415	415	415	416	415	414	414	414	413	413	412	412	413	413
25	391	392	393	394	394	394	393	392	392	392	392	391	390	390	391	391
30	364	366	368	368	368	369	368	366	366	366	366	365	364	364	365	365
35	335	337	339	339	339	339	339	337	336	337	337	335	334	334	336	336
40	303	305	307	307	306	307	307	304	304	304	304	303	301	302	304	304
45	268	270	273	272	272	273	272	269	269	269	270	268	266	267	269	270
50	232	235	237	236	235	237	236	233	232	233	234	232	230	231	233	234
55	195	197	199	199	197	199	199	195	194	196	197	194	192	194	196	197
60	155	159	162	159	157	160	161	156	154	157	159	155	152	155	159	158
65	113	118	123	118	114	119	122	114	110	115	120	113	109	114	121	117
70	67.3	74.7	83.3	74.7	69.6	75.6	82.1	70.5	65.0	71.2	79.9	69.9	63.8	70.5	80.8	73.7
75	28.1	32.8	41.5	33.7	30.1	34.4	40.0	30.4	27.5	30.8	38.0	30.3	26.9	31.0	39.2	32.1
80	10.2	11.4	12.0	11.7	10.8	11.7	11.7	10.9	10.1	10.8	10.9	10.5	9.66	10.7	11.1	11.1
85	4.08	4.25	4.09	4.39	4.33	4.38	4.05	4.18	4.18	4.13	3.80	4.01	3.92	3.99	3.84	4.21
90	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
110	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
115	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
120	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
125	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
130	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
135	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.02
140	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.02	0.02
145	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02
150	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
155	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
160	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
165	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.01
170	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
175	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
180	0.01	0.01	0.01	0.01	0.00	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01

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2.2 Color Spatial Uniformity	IES LM-79 2008 ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0
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Test Data :

Test date 2017-10-09	Test Ambient 25.1°C
Sample No.	Maximum Δu'v'
GZE1709109-H-L1	0.0034

Gamma\C	CIE u'	CIE v'	du' v'	CIE u'	CIE v'	du' v'
-74	0.2596	0.5231	0.0028	0.2597	0.5232	0.0026
-73	0.2595	0.5228	0.0029	0.2596	0.5229	0.0028
-72	0.2594	0.5226	0.0031	0.2596	0.5228	0.0028
-71	0.2597	0.5225	0.0028	0.2598	0.5227	0.0027
-70	0.2598	0.5226	0.0027	0.2598	0.5226	0.0027
-69	0.2602	0.5227	0.0023	0.26	0.5227	0.0024
-68	0.2603	0.5227	0.0022	0.2603	0.5228	0.0022
-67	0.2604	0.5228	0.0021	0.2604	0.5228	0.0021
-66	0.2608	0.5229	0.0017	0.2607	0.5229	0.0018
-65	0.2608	0.523	0.0016	0.2608	0.523	0.0017
-64	0.2609	0.5231	0.0015	0.261	0.5231	0.0014
-63	0.2611	0.5232	0.0013	0.2611	0.5231	0.0013
-62	0.2611	0.5232	0.0013	0.2613	0.5232	0.001
-61	0.2613	0.5233	0.0011	0.2614	0.5233	0.001
-60	0.2613	0.5233	0.001	0.2615	0.5233	0.0009
-59	0.2615	0.5234	0.0009	0.2617	0.5234	0.0006
-58	0.2615	0.5235	0.0008	0.2617	0.5235	0.0006
-57	0.2616	0.5235	0.0007	0.2618	0.5235	0.0005
-56	0.2616	0.5235	0.0007	0.2618	0.5235	0.0005
-55	0.2616	0.5235	0.0007	0.262	0.5236	0.0003
-54	0.262	0.5236	0.0003	0.2621	0.5236	0.0002
-53	0.262	0.5237	0.0003	0.2621	0.5236	0.0002
-52	0.262	0.5237	0.0003	0.2621	0.5236	0.0002
-51	0.2621	0.5237	0.0002	0.2623	0.5237	0
-50	0.2621	0.5237	0.0002	0.2623	0.5237	0.0001
-49	0.2621	0.5237	0.0002	0.2624	0.5237	0.0001
-48	0.2621	0.5237	0.0002	0.2624	0.5237	0.0001
-47	0.2621	0.5238	0.0002	0.2624	0.5238	0.0001
-46	0.2622	0.5238	0.0001	0.2624	0.5238	0.0002
-45	0.2623	0.5238	0.0001	0.2626	0.5239	0.0004

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-44	0.2623	0.5238	0.0001	0.2626	0.5238	0.0004
-43	0.2623	0.5238	0.0001	0.2627	0.5239	0.0004
-42	0.2624	0.5238	0.0002	0.2627	0.5239	0.0004
-41	0.2624	0.5238	0.0002	0.2627	0.5239	0.0005
-40	0.2624	0.5239	0.0002	0.2627	0.5239	0.0005
-39	0.2624	0.5239	0.0003	0.2627	0.5239	0.0005
-38	0.2625	0.5239	0.0003	0.2627	0.5239	0.0005
-37	0.2626	0.5239	0.0004	0.263	0.5239	0.0007
-36	0.2626	0.5239	0.0004	0.263	0.524	0.0007
-35	0.2626	0.5239	0.0004	0.263	0.524	0.0008
-34	0.2626	0.5239	0.0004	0.263	0.524	0.0008
-33	0.2626	0.5239	0.0004	0.263	0.524	0.0008
-32	0.2626	0.5239	0.0004	0.263	0.524	0.0008
-31	0.2627	0.5239	0.0005	0.263	0.524	0.0008
-30	0.2627	0.524	0.0005	0.263	0.524	0.0008
-29	0.2627	0.5239	0.0005	0.263	0.524	0.0008
-28	0.2627	0.5239	0.0005	0.263	0.524	0.0008
-27	0.2627	0.5239	0.0005	0.2632	0.524	0.001
-26	0.2627	0.5239	0.0005	0.2632	0.524	0.001
-25	0.2627	0.5239	0.0005	0.2632	0.524	0.001
-24	0.2628	0.5239	0.0006	0.2632	0.524	0.001
-23	0.2628	0.5239	0.0006	0.2632	0.524	0.001
-22	0.2628	0.5239	0.0006	0.2632	0.524	0.001
-21	0.2628	0.524	0.0006	0.2632	0.524	0.001
-20	0.2628	0.5239	0.0006	0.2632	0.524	0.001
-19	0.2628	0.5239	0.0006	0.2632	0.524	0.001
-18	0.2628	0.5239	0.0006	0.2632	0.524	0.001
-17	0.2628	0.5239	0.0006	0.2632	0.524	0.001
-16	0.2628	0.5239	0.0006	0.2632	0.524	0.001
-15	0.2628	0.5239	0.0005	0.2632	0.5239	0.001
-14	0.2628	0.5239	0.0006	0.2632	0.524	0.001
-13	0.2628	0.5239	0.0005	0.2632	0.524	0.001
-12	0.2628	0.5239	0.0005	0.2632	0.524	0.001
-11	0.2629	0.5239	0.0007	0.2632	0.5239	0.001
-10	0.2629	0.5239	0.0007	0.2632	0.5239	0.001
-9	0.2629	0.5239	0.0007	0.2632	0.5239	0.001
-8	0.2629	0.5239	0.0007	0.2632	0.5239	0.0009
-7	0.2629	0.5239	0.0007	0.2632	0.5239	0.0009
-6	0.2629	0.5238	0.0007	0.2632	0.5239	0.001
-5	0.2629	0.5239	0.0007	0.2632	0.5239	0.0009

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-4	0.2629	0.5239	0.0007	0.2632	0.5239	0.0009
-3	0.2629	0.5238	0.0007	0.2632	0.5239	0.0009
-2	0.2629	0.5238	0.0007	0.2632	0.5239	0.0009
-1	0.2629	0.5238	0.0006	0.2632	0.5239	0.0009
0	0.2629	0.5239	0.0006	0.2629	0.5239	0.0006
1	0.2629	0.5238	0.0006	0.2631	0.5239	0.0009
2	0.2629	0.5238	0.0006	0.2631	0.5239	0.0009
3	0.2629	0.5238	0.0006	0.2632	0.5239	0.0009
4	0.2629	0.5238	0.0006	0.2632	0.5239	0.0009
5	0.2628	0.5238	0.0006	0.2632	0.5239	0.0009
6	0.2628	0.5238	0.0006	0.2631	0.5239	0.0009
7	0.2628	0.5238	0.0006	0.2631	0.5239	0.0009
8	0.2628	0.5238	0.0006	0.2631	0.5239	0.0009
9	0.2628	0.5238	0.0006	0.2631	0.5239	0.0009
10	0.2628	0.5238	0.0006	0.2631	0.5239	0.0009
11	0.2629	0.5238	0.0006	0.2631	0.5239	0.0009
12	0.2628	0.5238	0.0006	0.2631	0.5239	0.0009
13	0.2628	0.5238	0.0006	0.263	0.5239	0.0007
14	0.2628	0.5238	0.0006	0.263	0.5239	0.0008
15	0.2628	0.5238	0.0006	0.263	0.5239	0.0008
16	0.2628	0.5238	0.0005	0.263	0.5239	0.0008
17	0.2628	0.5238	0.0005	0.263	0.5239	0.0007
18	0.2628	0.5238	0.0005	0.263	0.5239	0.0008
19	0.2628	0.5238	0.0005	0.263	0.5239	0.0008
20	0.2628	0.5238	0.0005	0.263	0.5239	0.0008
21	0.2627	0.5238	0.0005	0.263	0.5239	0.0008
22	0.2627	0.5238	0.0005	0.263	0.5239	0.0007
23	0.2627	0.5238	0.0005	0.263	0.5239	0.0007
24	0.2627	0.5238	0.0005	0.263	0.5239	0.0008
25	0.2627	0.5238	0.0005	0.2628	0.5239	0.0006
26	0.2627	0.5238	0.0005	0.2628	0.5239	0.0006
27	0.2627	0.5238	0.0004	0.2628	0.5239	0.0006
28	0.2625	0.5238	0.0002	0.2628	0.5239	0.0006
29	0.2625	0.5238	0.0002	0.2628	0.5239	0.0006
30	0.2625	0.5238	0.0002	0.2628	0.5239	0.0006
31	0.2625	0.5238	0.0002	0.2628	0.5239	0.0006
32	0.2625	0.5238	0.0002	0.2628	0.5239	0.0006
33	0.2624	0.5238	0.0002	0.2626	0.5239	0.0004
34	0.2624	0.5238	0.0002	0.2627	0.5239	0.0004
35	0.2624	0.5238	0.0002	0.2627	0.5238	0.0004

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36	0.2624	0.5238	0.0002	0.2627	0.5238	0.0004
37	0.2624	0.5238	0.0001	0.2627	0.5238	0.0004
38	0.2624	0.5237	0.0001	0.2625	0.5238	0.0003
39	0.2621	0.5237	0.0001	0.2625	0.5238	0.0003
40	0.2622	0.5237	0.0001	0.2625	0.5238	0.0003
41	0.2621	0.5237	0.0001	0.2625	0.5238	0.0003
42	0.2621	0.5237	0.0002	0.2625	0.5238	0.0002
43	0.2621	0.5236	0.0002	0.2623	0.5237	0.0001
44	0.2621	0.5236	0.0002	0.2623	0.5237	0.0001
45	0.2621	0.5236	0.0002	0.2623	0.5237	0
46	0.2619	0.5236	0.0004	0.2623	0.5237	0
47	0.2618	0.5235	0.0005	0.2621	0.5237	0.0001
48	0.2618	0.5235	0.0005	0.2621	0.5236	0.0001
49	0.2618	0.5235	0.0005	0.2621	0.5236	0.0001
50	0.2618	0.5235	0.0005	0.2621	0.5236	0.0002
51	0.2617	0.5235	0.0006	0.262	0.5236	0.0003
52	0.2615	0.5234	0.0008	0.262	0.5236	0.0003
53	0.2615	0.5234	0.0008	0.2619	0.5235	0.0004
54	0.2615	0.5234	0.0009	0.2618	0.5235	0.0005
55	0.2615	0.5233	0.0009	0.2618	0.5235	0.0005
56	0.2614	0.5233	0.0009	0.2618	0.5235	0.0006
57	0.2612	0.5232	0.0012	0.2618	0.5234	0.0006
58	0.2612	0.5232	0.0012	0.2617	0.5234	0.0006
59	0.2611	0.5232	0.0013	0.2617	0.5234	0.0007
60	0.2611	0.5231	0.0013	0.2613	0.5233	0.001
61	0.2608	0.523	0.0016	0.2613	0.5232	0.001
62	0.2608	0.523	0.0017	0.2613	0.5232	0.0011
63	0.2605	0.5229	0.0019	0.2612	0.5231	0.0012
64	0.2605	0.5228	0.002	0.2612	0.5231	0.0012
65	0.2604	0.5228	0.0021	0.2608	0.523	0.0016
66	0.2602	0.5227	0.0023	0.2608	0.5229	0.0017
67	0.2601	0.5226	0.0024	0.2607	0.5229	0.0017
68	0.2598	0.5225	0.0027	0.2604	0.5227	0.0021
69	0.2595	0.5224	0.003	0.2603	0.5227	0.0022
70	0.2595	0.5224	0.0031	0.2603	0.5226	0.0022
71	0.2592	0.5224	0.0033	0.2599	0.5226	0.0026
72	0.2591	0.5224	0.0034	0.2599	0.5226	0.0026
73	0.259	0.5226	0.0034	0.2596	0.5226	0.0029
74	0.2591	0.5229	0.0032	0.2598	0.5228	0.0026

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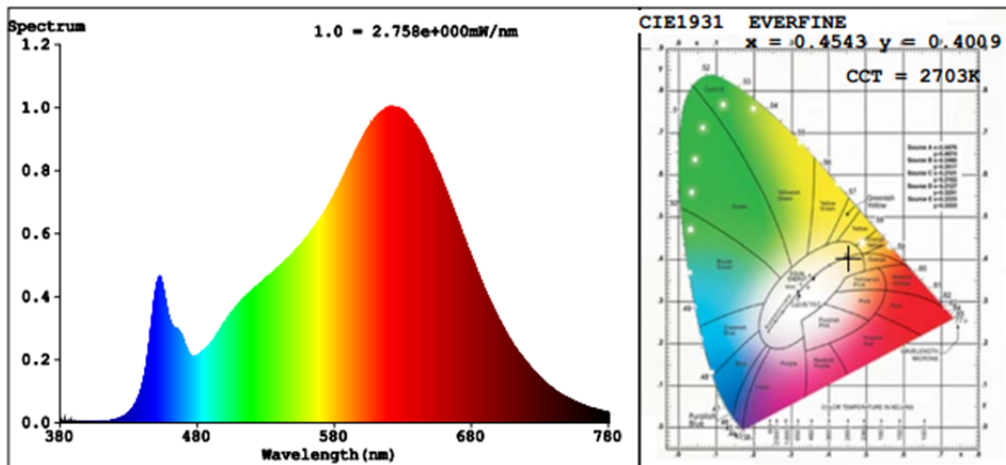
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3. Electrical and Photometric Measurements, with dimming	IES LM-79 2008 ENERGY STAR[®] Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0
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Test date	2017-10-09	Test Ambient:	25.1°C		
Dimmer Model		LEVITON MFG CO INC (E31373), Cat. No. 6681			
Sample No.	Input	Luminous flux (lm)	CCT (K)	CRI	P.F.
GZE1709109-H-L1	120.0 V / 60 Hz	127.8	2703	93.5	0.2038
GZE1709109-H-L2	120.0 V / 60 Hz	168.2	2704	93.4	0.2460
GZE1709109-H-L3	120.0 V / 60 Hz	90.34	2701	93.5	0.2055
Average		128.8	2703	93.5	0.2184



Colorimetric Parameters

Chromaticity Coordinate: $x=0.4543$ $y=0.4009$ $u'=0.2632$ $v'=0.5228$ $Dx, Dy: -0.0053, -0.0096$
 CCT=2703K (Duv=-0.0031) Dominant WL:Ld =585.3nm Purity=56.7%
 Peak WL:Lp=622.9nm FWHM=140.4nm
 Render Index:Ra=93.5 CRI=92.0
 R1 =96 R2 =99 R3 =97 R4 =94 R5 =96 R6 =96 R7 =90
 R8 =82 R9 =63 R10=98 R11=96 R12=86 R13=97 R14=99 R15=91

The luminaires [can] ~~lean not~~ provide less than 20% of total light output with continuous dimmer.

Dimmer	Peak Noise Reading (dBA)	Test Condition	Distance between the microphone and the UUT
LEVITON MFG CO INC (E31373), Cat. No. 6681	20.3	Dimmer adjusted to lowest light output	< 1 m

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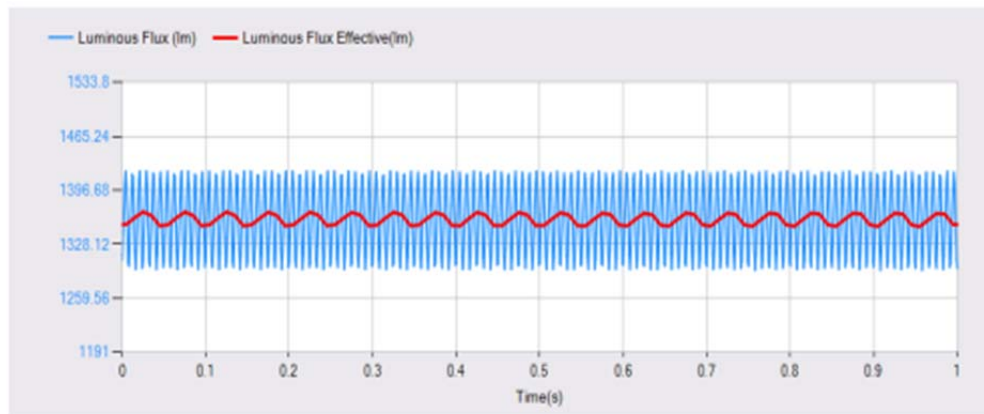
Report Format Number STD/QR4910-A/1

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4 Operating Frequency	ENERGY STAR[®] Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0
Noted: This test and data are not covered by NVLAP accreditation	

Test date	2017-10-09	Test Ambient:	25.1°C
Sample No.	Operating Frequency (Hz)		
GZE1709109-H-L1	120.37		
GZE1709109-H-L2	120.25		
GZE1709109-H-L3	120.32		
Average	120.31		



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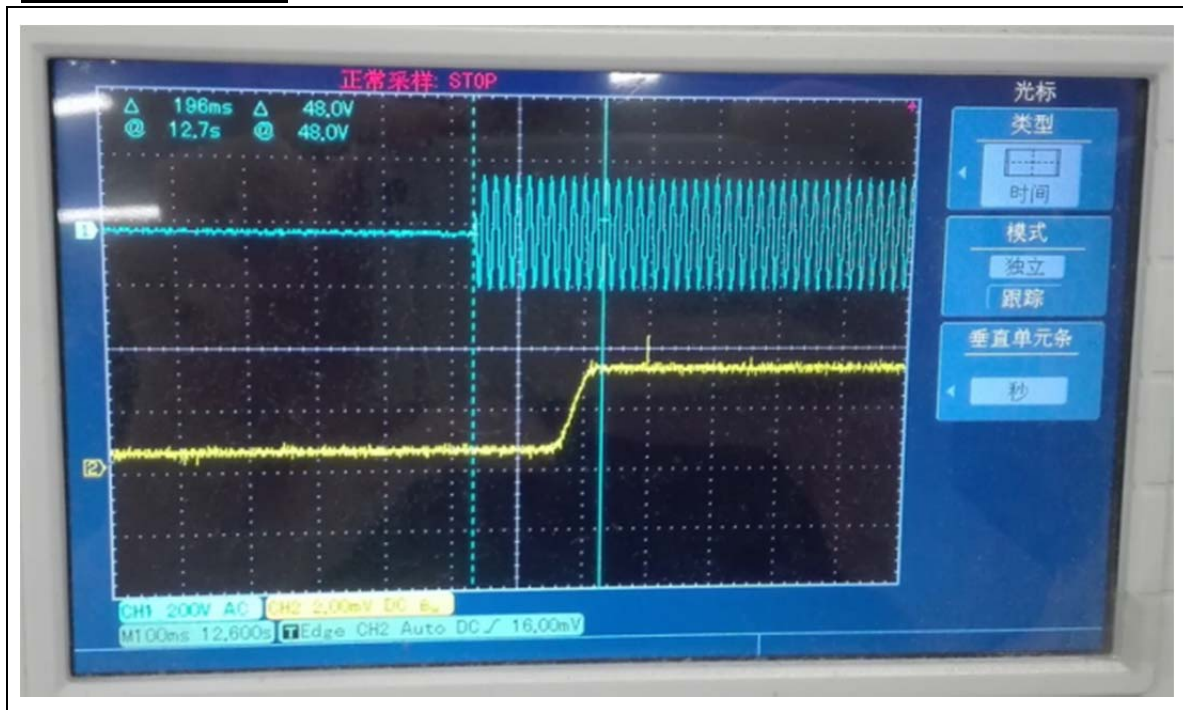
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<p>5 Starting Time <i>(Refer to Work Instruction QD28)</i></p>	<p>ENERGY STAR® Program Requirements Product Specification for Luminaires (Light Fixtures) - Version 2.0</p>
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Test date	2017-10-09	Test Ambient:	25.1°C
Sample No.	Start Time (ms)		
GZE1709109-H-L1	196		
GZE1709109-H-L2	216		
GZE1709109-H-L3	200		
Average	204		

Graph (Start Time):



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<p>6. Transient Protection Test <i>(Refer to Work Instruction QD34)</i></p>	<p>ANSI/IEEE C62.41 ENERGY STAR® Program Requirements for Luminaires – Version 2.0</p>
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Test voltage: 120V,60Hz

Test date	2017-10-09	Test Ambient	25.1°C
Sample No.		Transient Protection Test - Seven Strikes	
GZE1709109-H-L1		Pass	
GZE1709109-H-L2		Pass	
GZE1709109-H-L3		Pass	

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Report Format Number STD/QR4910-A/1

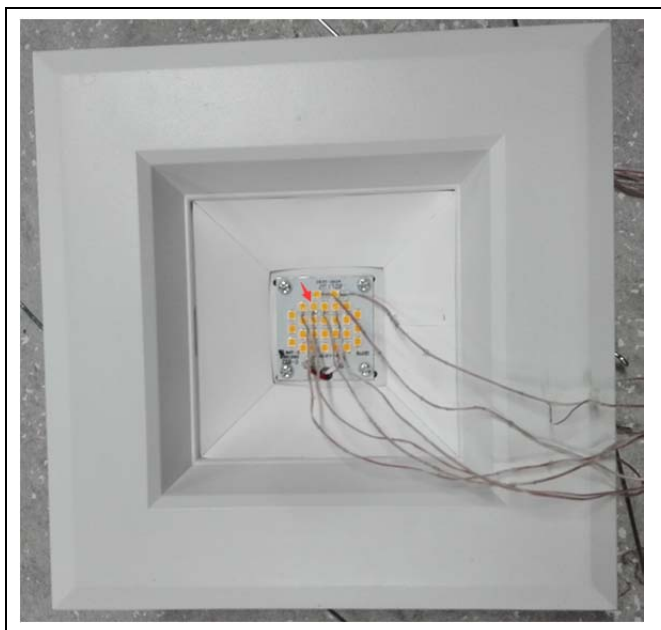
Address: Standard-Tech Building, No.6 Guanhong Road,Guangzhou Science City, Guangzhou 510663, China

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7.1 In-Situ Temperature Measurement Test (ISTMT)	UL1598-2008, 3rd Edition
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Test date	2017-10-09	Test Ambient	25.1°C
Input Vol./Frequency	120 V / 60 Hz	Output Current of Single LED(mA)	147
Sample No.	LED Package Model	Maximum Measured LED Ts Point Temperature (°C)	Maximum LED Ts Point Temperature Limited (°C)
GZE1709109-H-L1	2T03X5WW11000003	73.5	105

In-Situ Picture - Ts:



7.2 Maximum Measured Ballast or Driver Case Temperature	UL1598-2008, 3rd Edition
--	--

Test date	2017-10-09	Test Ambient	25.1°C
Sample No.	Maximum Measured Driver Case Temperature (°C)	Maximum Driver Case Temperature Limited (°C)	
GZE1709109-H-L1	88.9	105	

In-Situ Picture - Ts:



8 Off-State Power Consumption:**ENERGY STAR® Program Requirements Product
Specification for Luminaires (Light Fixtures) -
Version 2.0**

Test date	2017-10-09	Test Ambient:	25.0 ° C
Model Number	LRKT644W-EN-2790	Stabilization Time (min)	90

Electrical Measurement – when the luminaires turned off:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)
GZE1709109-H -L1	120.0	60	0	0

**Laboratory: Standard-Tech Co. Ltd Testing Center
NVLAP CODE: 201011-0**

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8. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-336	2 meter Integrating Sphere	2017-07-01	2018-06-30
ST-R-331	Spectral analysis system HAAS-2000	2017-07-01	2018-06-30
EE-09	Goniophotometer system	2017-07-01	2018-06-30
D908S	Standard Lamp	2017-07-01	2018-06-30
D204	Standard Lamp	2017-07-01	2018-06-30
PF2010	Power Meter for Integrating Sphere	2017-07-01	2018-06-30
PF210	Power Meter for Goniophotometer	2017-07-01	2018-06-30
EE-015	Flux Meter	2017-07-01	2018-06-30
ST-R-277	Oscillograph	2017-07-01	2018-06-30
ST-R-EM01	Surge Generator	2017-07-01	2018-06-30
ST-R-EM02	EMC Coupler/Decoupler Module	2017-07-01	2018-06-30
Uncertainty Photometric Measurement (Sphere):1.74% Chromaticity Measurement(Sphere):14.3K Photometric Measurement(Goniophotometer):1.62%			

******* END OF DATASHEET PACKAGE *******